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Clanculus largillierti (Philippi, 1849) rediscovered in the Mascarene Islands (Gastropoda: Trochidae)

by

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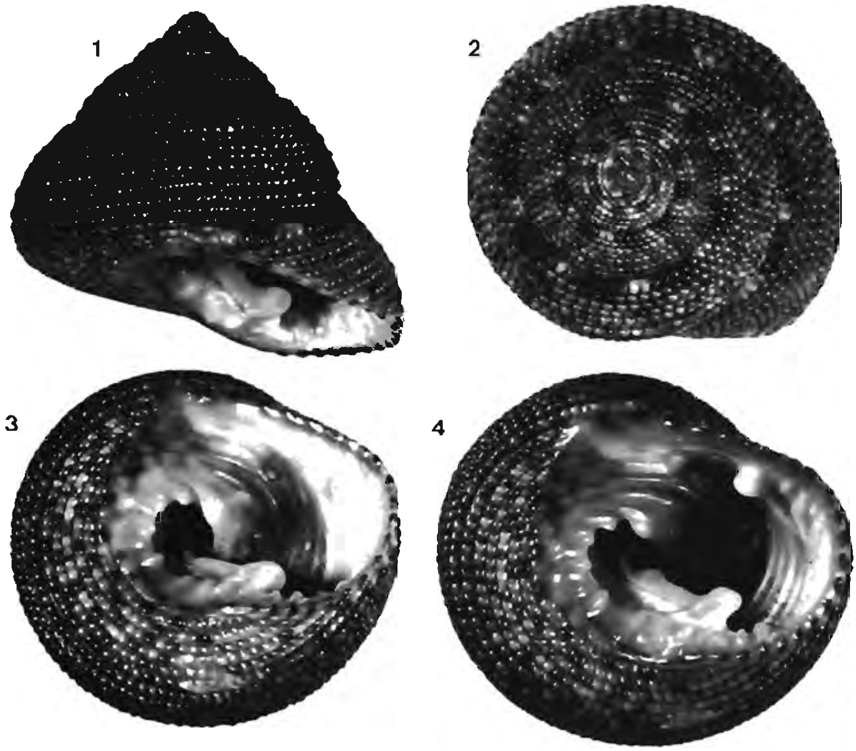
ABSTRACT

Clanculus largillierti (Philippi, 1849), previously of unknown provenance, has been found living intertidally and in shallow water off the Mascarene Islands of Mauritius and Réunion. As none of the original material is extant a neotype is designated. The taxon is redescribed and is shown to be distinct from *Clanculus mauritianus* Melvill, 1909.

INTRODUCTION

Since its description *Trochus largillierti* Philippi, 1849 has remained a taxon of unknown provenance. Fischer (1877) made mention of additional material available



Figs 1–4. *Clanculus largillierti* (Philippi, 1849), neotype of *Trochus largillierti* Philippi, 1849, from Réunion, diameter 13,0 mm (NMSA L150/T852).

to him, but, like Philippi, knew nothing of its origin. Pilsbry (1889) placed the species in *Clanculus* (as a subgenus of *Trochus*), but could add no further information and I am not aware of any subsequent references to this name in the literature. On a recent visit to the Muséum National d'Histoire Naturelle in Paris I came across material identified as *Clanculus largillierti* which, indeed, agreed with Philippi's description and figure of the taxon, and which was also clearly conspecific with a species from the Mascarene Islands which has recently been identified as *C. mauritianus* Melvill, 1909. Upon this 'rediscovery' of the species it seems pertinent to provide a redescription and compare it with similar taxa.

That the species is referable to *Clanculus* is evidenced by the disjunction of the columella and paries, and the well-developed apertural dentition. The presence of a distinct anal tooth and the compound nature of the basal columella tooth allies the species to *Clanculus s.s.*

Clanculus (Clanculus) largillierti (Philippi, 1849)

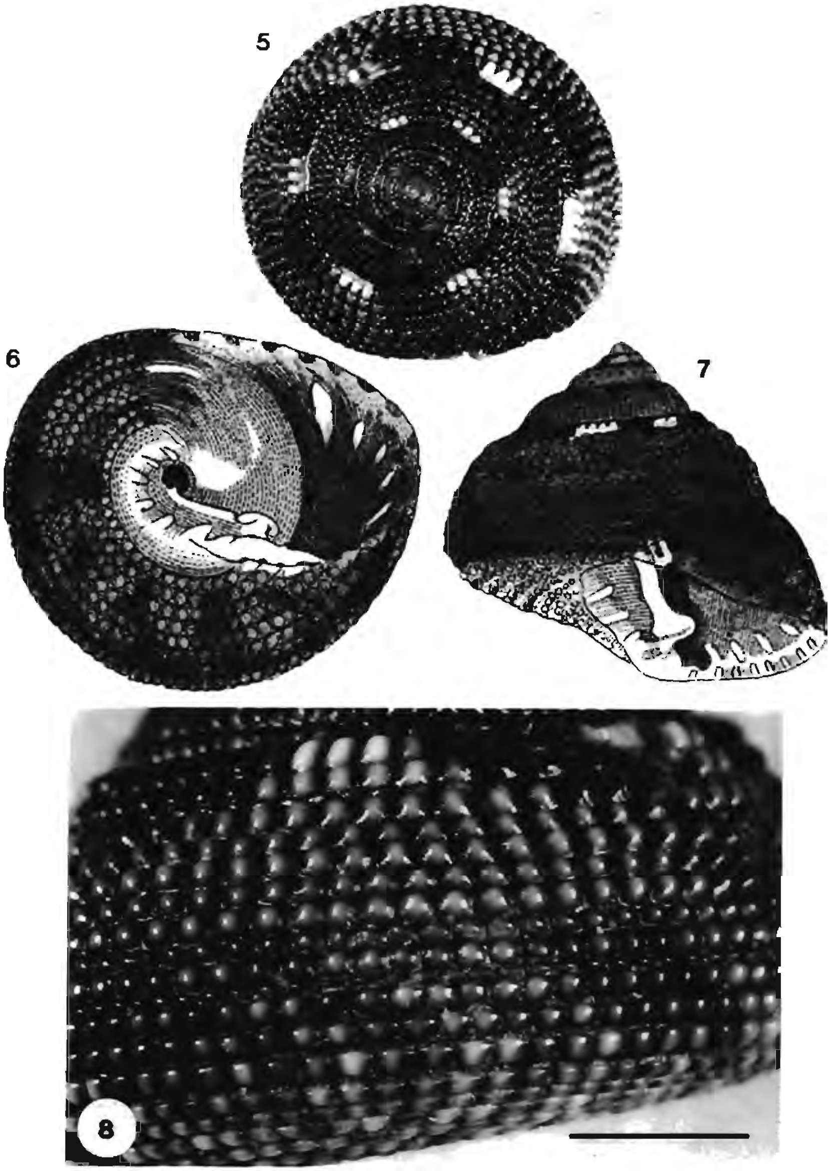
Figs 1–14

Trochus largillierti Philippi, 1849:109; *idem*, 1855:265, pl. 39, fig. 6; Fischer, 1877:216, pl. 71, fig. 3; Pilsbry 1889:67, pl. 11, fig. 51. Type loc.: provenance originally unknown, neotype (here designated) from Cap la Houssaye, Réunion.

Clanculus mauritianus (*non* Melvill, 1909); Drivas & Jay, 1988:36.

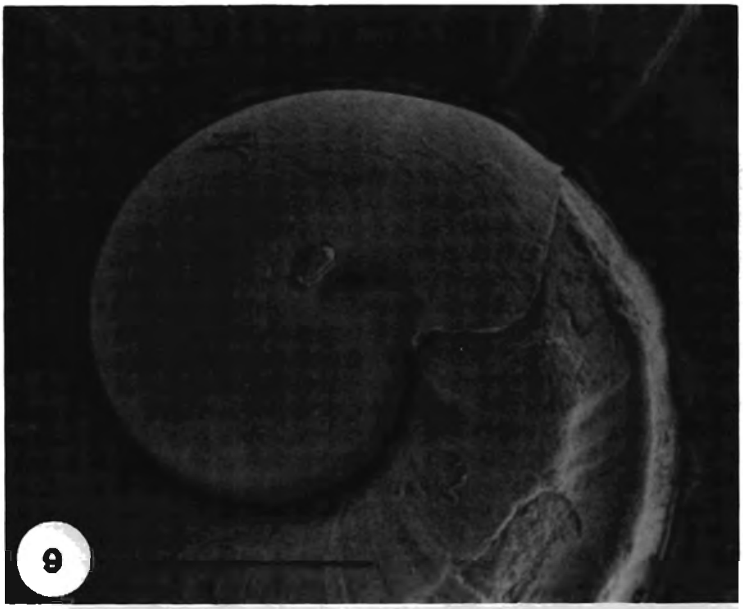
Diagnosis: Apex pinkish, remainder of shell for most part dark brownish, becoming paler towards umbilicus; subsutural region with alternating darker brown/black and white blotches. Sculptured by close-set spiral cords, 8–12 between suture and periphery on body whorl; cords set with relatively small, but well-defined, rounded granules; intervals between cords narrower than cords themselves and lacking axial pliculae. Apertural dentition moderately strong, basal columella tooth compound, anal tooth present; umbilicus open to apex.

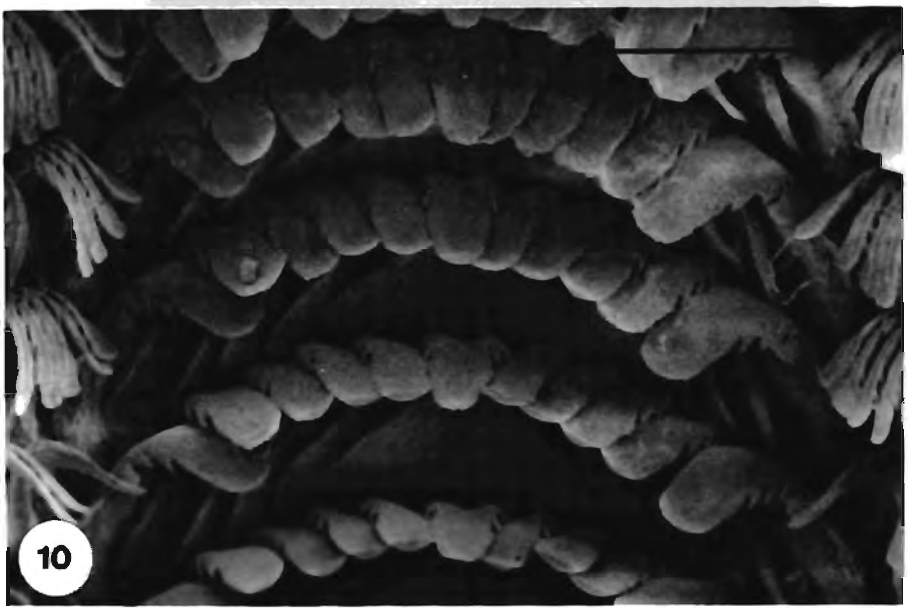
Description: Shell trochoid-turbiniform, length/diameter = 0,82–0,95; teleoconch of up to 7 whorls, whorls somewhat adpressed; suture level with periphery of preceding whorl, rather weakly indented; spire whorls more or less evenly conoid, becoming cyrtoconoid on body whorl; last part of body whorl in mature shells descends near aperture and outer lip joins penultimate whorl below periphery; base somewhat flattened, umbilicate, columella disjunct from paries. First teleoconch whorl with three spiral cords, one at shoulder, one at periphery, and one between these; cords become more or less uniformly coloured deep pink to crimson (not spotted) near end of whorl, colour of uppermost cord deepest; intermediary cords arise during second and subsequent whorls; body whorl with 8–12 cords between suture and periphery, some with additional finer intermediaries. All spiral cords granular from an early age; granules rounded, occasionally roundly quadrate, rather more spirally elongate on intermediary cords; granules on subsutural cord frequently larger. Intervals between cords narrow, clearly narrower than cords themselves, lacking axial pliculae (Fig. 8), sculptured at most by microscopic collabral growth-lines. Base with 8–12 spiral cords and occasional finer intermediaries; cords likewise granular, but granules flatter and more quadrate, particularly toward umbilicus; intervals between cords narrow and not obviously sculptured. Umbilicus open to apex, surrounded by inductural callus; mature apertural dentition relatively well developed; umbilicus



Figs 5–8. *Clanculus largillierti* (Philippi, 1849). 5, MNHN specimen from Réunion, diameter 11,5 mm; 6–7, Philippi's figures of *Trochus largillierti* given in the *Conchylien Cabinet* (1855:pl. 39, fig. 6); 8, detail of sculpture of MNHN specimen, bar = 3,0 mm.

bordered by 7–8 ridge-like denticles, one near paries usually stronger; parietal ridges present; interior of outer lip with spirally aligned, ridge-like denticles, upper most of which is larger and forms a distinct anal tooth; edge of outer lip with dark brown/black denticles marking ends of external spiral cords, denticles strongest on





Figs 9–10. *Clanculus largillierti* (Philippi, 1849), protoconch and radula. 9, protoconch of juvenile specimen from Réunion (NMSA K5020); 10, central portion of radula of specimen from type locality (*ex* NMSA K9490). Scale bars = 100 μm.

basal portion of lip and usually disjunct from internal ridges; basal columella tooth prominent, sculptured by 2–3 ridges; columella slightly recurved, central portion more or less smooth, upper portion with two denticles, lower one of which is stouter and stronger; disjunction between columella and paries moderately deep-set, interior nacreous when fresh, but losing iridescence with time.

Protoconch (Fig. 9): Like that of other *Clanculus s.s.* species (personal observation); surface evidently smooth, apex weakly, but distinctly beaked and terminal lip sinuous; diameter 180–200 μm.

Colour: Early whorls translucent pink to orange-pink with deep pink to crimson spiral cords, rendering apex of spire distinctly pinkish. Adult colour pattern of brownish ground mottled with paler colours appearing during third whorl; from fourth whorl onwards ground colour dark brown to dark greyish brown, granules frequently paler; subsutural region marked by alternating dark (almost black) and light (nearly white) blotches, bolder in some specimens than others; dark blotches frequently larger than light ones; base patterned as apical surface, but generally paler, particularly towards umbilicus; umbilicus and inductural callus cream coloured, somewhat translucent; edge of outer lip with dark brown spots. Drivas & Jay (1988) figured two specimens, one with typical coloration and other with very much more extensive pale markings. The latter is simply an unusual colour variety.

Dimensions: Largest NMSA specimen, length 13,1 mm, diameter 14,9 mm; smallest NMSA specimen with mature apertural dentition, length 10,7 mm, diameter 12,9 mm; neotype, length 11,7 mm, diameter 13,0 mm.

Operculum: Corneous, multispiral with central nucleus, brownish-yellow/orangish-yellow; external surface glossy, concave; peripheral fringe lacking; growing edge short, evident only in juvenile specimens, opercular margin continuous in mature specimens.

Radula (Fig. 10): Formula $\infty + 5 + 1 + 5 + \infty$. Almost indistinguishable from that of *C. puniceus* (see Herbert 1993). As in other *Clanculus s.s.* species width of rachidian cusp much less than half that of base plate.

External anatomy: Only dehydrated soft parts reconstituted with trisodium phosphate have been examined. Gross external anatomy appears identical to that of *C. puniceus* (Herbert 1993); much dark brown/black pigmentation (blotches and spots) present on snout and sides of foot, with a dark brown band just behind mantle edge.

Distribution: Currently known only from the Mascarene Islands of Mauritius and Réunion. I have seen material from Madagascar (leg. J. Drivas) which resembles this species, but which is too worn for positive identification.

Habitat: Large intertidal rock pools and extending subtidally to depths of 45 m (dead), rarely in lagoons. Because of the small amount of live-collected material available, little can be said of the preferred habitat and bathymetric range of the species. Jay (in lit.) indicated that living specimens are most easily collected from permanent pools in basaltic intertidal outcrops. The only locality where the species has been found living with any regularity is at Cap la Houssaye on the west coast of Réunion, in a large pool (Barramine Pool) at mid to low tide level on a rocky basalt promontory. It is evidently a secretive species, its dark colour providing crypsis on the dark basaltic rocks of these volcanic islands, and is active mainly at night. Extensive collecting in lagoons and back-reef channels brought to light very few specimens, confirming the preference for open coast, rocky habitats rather than coral reef or lagoonal systems.

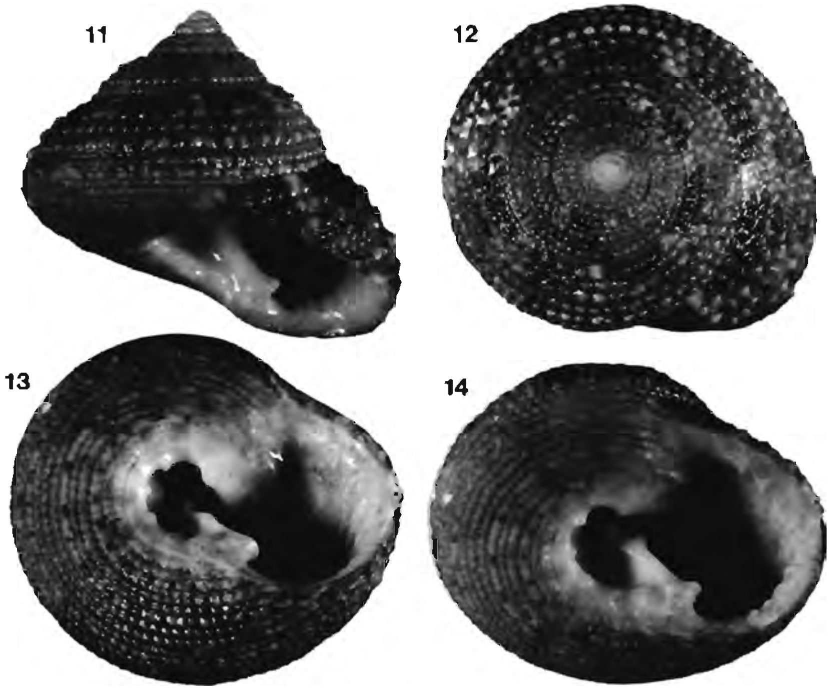
Material examined: RÉUNION: Possession Bay, rounded boulders and stones below pebble beach, 3–6 m, dived D. Herbert (NMSA K5104); Barramine Pool, Cap la Houssaye, large rock pools in basalt rock, living, Dr M. Jay (NMSA K9490); Cap la Houssaye, 1 m, under stones, J. Drivas (NMSA K7758); Cap Homard lagoon, coral heads with encrusting foliose coralline alga, sand, living, R. Kilburn & D. Herbert (NMSA K5020); Grand Ravine, north of St Leu, tide pools in exposed lava outflow, R. Kilburn & D. Herbert (NMSA K5489); Réunion, not further localised, coll'n Denis (MNHN). MAURITIUS: Gris Gris, beach drift, no fringing reef, R. Kilburn & D. Herbert (NMSA K5808); off Flic en Flac, beyond reef-front, 45 m, dived J. Drivas (NMSA K7757).

Type material: Philippi (1855) stated that the original material was in the Largilliert collection. Between 1839 and 1850 Largilliert donated shells to the Rouen Museum and in 1855 his widow gave what was presumably the remainder of the collection to the same institution (Pennetier 1900, Métivier in lit.). Bouchet (in lit.) has examined what remains of this collection and has transferred the type specimens to the MNHN, but the type material of *T. largillierti* is not amongst this. No specimens identified under this name remain in the Rouen Museum (Fouray *in lit.*), nor are any present in the Humboldt University Museum, Berlin (pers. obs.). It is thus highly probable that all the original material is lost and I thus designate a neotype (Figs 1–4) – Barramine Pool, Cap la Houssaye, Réunion, leg. Dr M. Jay (NMSA L150/T852).

Remarks: That this recently collected Mascarene Island material is referable to *Trochus largillierti* is clear (compare Figs 1–5 with Philippi's original figures, reproduced herein, Figs 6–7). There is some variation in colour pattern, particularly in respect of the whiteness of the subsutural markings, but this is of little significance.

The overall facies of the shell, taken together with its relatively strong apertural dentition (including a compound basal columella tooth and enlarged anal tooth), allies *T. largillierti* with species of *Clanculus s. s.* Perhaps the most similar species in terms of shape and colour is *C. atricatena* Tomlin, 1921, from south-eastern Africa, but that species is generally lighter in colour with a number of black and white (dark and light) articulated cords on the spire and has more widely spaced spiral cords with well-developed prosocline axial pliculae in their intervals.

The confusion of the species with *Clanculus mauritianus* Melvill, 1909, requires further comment. Examination of the holotype (BMNH 1910.3.17.4) of that species (Figs 11–14) shows it to differ from *largillierti* in being a paler, brownish-pink, in having fewer, more widely spaced spiral cords above the periphery, in lacking black and white subsutural markings, in lacking a distinct anal tooth inside the outer lip, and in having fine prosocline pliculae in the intervals between the spiral cords. Furthermore, *C. mauritianus* was reportedly dredged at between 500–600 fathoms (900–1100 m) (Percy Sladen Trust Expedition, station A4), whilst all the material referable to *C. largillierti* that I have seen has come from intertidal pools or the shallow sublittoral (<50 m). In reality, however, it is most unlikely that *C. mauritianus* in fact lives in such deep water; the genus *Clanculus* and the Trochini as a whole are almost exclusively inhabitants of shallow water (Hickman &



Figs 11–14. *Clanculus mauritianus* Melvill, 1909, holotype (BMNH 1910.3.17.4), length 10,4 mm, diameter 12,3 mm.

McLean 1990). The holotype was dead and rather eroded when collected and was dredged on a substrate of nearly lifeless 'coherent, grey, sandy mud' (Gardiner & Cooper 1907). The type locality is situated relatively close to the shore (off Rivière Citron, north of Port Louis) and it is probable that the specimen originated in shallow water and was subsequently washed to greater depths. Unfortunately, no further specimens of *mauritianus* have been documented since the species was described.

ABBREVIATIONS

BMNH — The Natural History Museum, London.
MNHN — Muséum National d'Histoire Naturelle, Paris.
NMSA — Natal Museum, Pietermaritzburg, South Africa.

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